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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/559,689

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Jean-Louis Lebrun

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EXAMINER

PATTON, SPENCER D

ART UNIT

PAPER NUMBER

3664

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/559,689	<b>Applicant(s)</b> LEBRUN, JEAN-LOUIS	
	<b>Examiner</b> SPENCER PATTON	<b>Art Unit</b> 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 23-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/6/2005; 4/14/2009</u> .                                    | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Receipt is acknowledged of the IDS filed 4/14/2009 which has been entered in the file. Claims 23-44 are pending.

### ***Claim Objections***

2. Claim 23 is objected to because of the following informalities: On the second line "with a view to being" is unclear and should be replaced. Appropriate correction is required.

3. Claim 34 is objected to because of the following informalities:

Line 2: "equipments" should be replaced with --equipment--.

Line 5: "it" should be replaced with --the device--.

Last three lines: "following a multiple buffer memory, a multiple anti-noise digital filter filtering in parallel the various available versions of signals from primary flight equipments and operating, like the multiple buffer memory at the first sampling rate." should be replaced with --following a buffer memory, an anti-noise digital filter filtering in parallel with the other anti-noise digital filters the various available versions of signals from the primary flight equipment and operating, like the buffer memory at the first sampling rate.--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing).

Blackwell et al teaches:

**Re claim 23.** A method for processing information output by a primary flight equipment mounted on board an aircraft (paragraph [0027] teaches that the invention may be used with technologies found in aircraft), in a form sampled at a first rate (Signal A @  $f_A$ , Figure 1) with a view to being delivered after processing, to a flight conduct system of the aircraft (information sink 30, Figure 1), in a form sampled at a second rate lower than the first rate (Signal B @  $f_B$ , Figure 1; and paragraph [0032]), wherein the samples of information output by an item of primary flight equipment are submitted to an anti-noise filtering carried out at the first sampling rate (filter 314, Figure 2).

Blackwell et al fails to specifically teach: **(re claim 23)** wherein the filter is a digital filter.

Smith teaches, at Figure 21-1 on page 345, that digital filters have many advantages over analog filters.

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In view of Smith's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al, **(re claim 23)** wherein the filter is a digital filter; since Smith teaches that digital filters have better performance than analog filters.

6. **Claims 34 - #####** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing) and further in view of Gyde et al (EP 0 913 746).

The teachings of Blackwell et al in view of Smith have been discussed above.

Blackwell et al fails to specifically teach: **(re claim 34)** buffer memory; **(re claims 32 and 43)** wherein the filtering is filtering with sliding average operating on several samples.

Smith teaches, at page 507, that filtering requires a circular buffering memory to work properly. Smith also teaches, on page 350, that moving average is the preferred method for filtering due to its increased execution speed over a single pole filter.

In view of Smith's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al, **(re claim 34)** buffer memory; **(re claims 32 and 43)** wherein the filtering is filtering with sliding average operating on several samples; since Smith

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teaches that buffer memory is required for filtering, and that moving average is the preferred method for filtering due to its increased execution speed.

Blackwell et al in view of Smith fails to specifically teach: **(re claim 34)** redundant architecture.

Gyde et al teaches, at Figure 2B, having redundant inputs to a control unit, such as an autopilot system.

In view of Gyde et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al in view of Smith, **(re claim 34)** redundant architecture; since Gyde et al teaches that this redundancy is important for determining if sensor are properly functioning.

Blackwell et al further teaches:

**Re claims 24 and 35.** Wherein the anti-noise digital filtering is an anti-aliasing filtering disabling the frequency components higher than half the second sampling rate (paragraph [0035] lines 3-6).

7. **Claims 25, 26, 36, and 37** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing) and Gyde et al (EP 0

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913 746) as applied to claims 23 and 34 above, and further in view of Lin et al (US Patent No. 6,671,342).

The teachings of Blackwell et al in view of Smith and Gyde et al have been discussed above. Blackwell et al in view of Smith and Gyde et al fails to specifically teach: **(re claims 25, 26, 36, and 37)** wherein the anti-noise digital filtering is an anti-aliasing filtering disabling the frequency components lower than half the first sampling rate.

Lin et al teaches, at Figure 5, using a Nyquist high pass prefilter in combination with the low pass filter to effectively clean a signal.

In view of Lin et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al in view of Smith and Gyde et al; **(re claims 25, 26, 36, and 37)** wherein the anti-noise digital filtering is an anti-aliasing filtering disabling the frequency components lower than half the first sampling rate; since Lin et al teaches using a Nyquist high pass prefilter in conjunction with a low pass filter to produce a usable signal.

8. **Claims 27-29 and 38-40** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing) and Gyde et al (EP 0 913 746) as applied to claims 23 and 34 above, and further in view of Lesurf (Filters Order, order!).

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The teachings of Blackwell et al in view of Smith and Gyde et al have been discussed above. Blackwell et al in view of Smith and Gyde et al fails to specifically teach: **(re claims 27 and 38)** wherein the filtering is a first-order low-pass filtering; **(re claims 28 and 39)** wherein the filtering is a second-order low-pass filtering; **(re claims 29 and 40)** wherein the filtering is a low-pass filtering of Butterworth type.

Lesurf teaches, at 3.2, that first order and second order filters are art recognized functional equivalents of each other. Lesurf also teaches, in the last paragraph, that Butterworth filters are standard and can be used to optimize properties for a given application.

In view of Lesurf's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al in view of Smith and Gyde et al, **(re claims 27 and 38)** wherein the filtering is a first-order low-pass filtering; **(re claims 28 and 39)** wherein the filtering is a second-order low-pass filtering; **(re claims 29 and 40)** wherein the filtering is a low-pass filtering of Butterworth type; since Lesurf teaches that these are standard types of filters commonly used in signal processing and that first and second order filters are art recognized functional equivalents for performing a low pass filtering.

9. **Claims 30 and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing), Gyde et al (EP 0 913 746), Lin et al



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(US Patent No. 6,671,342) and Lesurf (Filters Order, order!) as applied to claims 23, 26, 29, 34, 37, and 40 above.

The teachings of Blackwell et al in view of Gyde et al, Lin et al, and Lesurf have been discussed above. Blackwell et al in view of Gyde et al, Lin et al, and Lesurf fails to specifically teach: **(re claims 30 and 41)** wherein the filtering is a bandstop filtering of Butterworth type.

Smith teaches, at Figure 14-9 on page 275, that a band-reject filter is simply the combination of high pass and low pass filters which do not overlap.

In view of Smith's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al in view of Gyde et al, Lin et al, and Lesurf, **(re claims 30 and 41)** wherein the filtering is a bandstop filtering of Butterworth type; since Smith teaches that a bandstop filter is a simplified version of what was constructed in re claims 26 and 37 and as mentioned in re claims 29 and 40, Butterworth filters are standard and can be used to optimize properties for a given application.

10. **Claims 31 and 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing), and Gyde et al (EP 0 913 746), as applied to claims 23 and 34 above, and further in view of Detlefsen (US Publication No. 2003/0231083).

The teachings of Blackwell et al in view of Smith and Gyde et al have been discussed above. Blackwell et al in view of Smith and Gyde et al fails to specifically teach: **(re claims 31 and 42)** wherein, when the processed information originating from a primary flight equipment is affected by noise exhibiting energy spikes, the anti-noise digital filtering is a filtering with stopbands corresponding to the energy spikes of the noise.

Detlefsen teaches, at paragraph [0006], using a filter to eliminate spikes from a signal with a stopband.

In view of Detlefsen's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al in view of Smith and Gyde et al, **(re claims 31 and 42)** wherein, when the processed information originating from a primary flight equipment is affected by noise exhibiting energy spikes, the anti-noise digital filtering is a filtering with stopbands corresponding to the energy spikes of the noise; since Detlefsen teaches using such a method to eliminate unwanted spikes from a signal.

11. **Claims 33 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blackwell et al (US Publication No. 2002/0009057) in view of Smith (The Scientist and Engineer's Guide to Digital Signal Processing), and Gyde et al (EP 0 913 746) as applied to claims 23 and 34 above, and further in view of Kiss et al (US Patent No. 6,460,803).

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The teachings of Blackwell et al in view of Smith and Gyde et al have been discussed above. Blackwell et al in view of Smith and Gyde et al fails to specifically teach: **(re claims 33 and 44)** wherein the filtering implements a transfer function dependent on the flight configuration of the aircraft.

Kiss et al teaches, at column 21, lines 33-48, compensating the plant every few seconds to adjust for changes in the transfer function caused by changes in flight conditions.

In view of Kiss et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the signal processing system as taught by Blackwell et al in view of Smith and Gyde et al, **(re claims 33 and 44)** wherein the filtering implements a transfer function dependent on the flight configuration of the aircraft; since Kiss et al teaches that on the fly adjustments in response to flight conditions are preferred.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SPENCER PATTON whose telephone number is (571)270-5771. The examiner can normally be reached on Monday-Thursday 7:30-5:00; Alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571)272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. P./

Examiner, Art Unit 3664

6/5/2009

/KHOI TRAN/

Supervisory Patent Examiner, Art Unit 3664